

REMARKS

Claim 1 has been amended to conform the language to that appearing at page 11 lines 12-15 of the specification.

Regarding the §112 rejection

This rejection is believed to be overcome by the various amendments to the claims.

Regarding the §102(b) and 103(a) rejections stated in paragraphs 7-15 of the office action

The examiner's attention is brought to the language at the end of applicant's claim 1, which reads as follows:

“...the surfaces of adjacent polymer particles are in contact with each other or connected in spots but the boundary is not lost due to the fusion of the particles and voids are left between the polymer particles.”

The examiner's attention is also brought to the final limitation of claim 7, which reads:

“... and conducting a soft calendering treatment or a machine calendering treatment on said glossy layer surface at a temperature of from room temperature to 40°C.”

It is the applicants' position that these limitations distinguish the Ishida reference. In particular, the quoted limitation of claim 1 is not inherently achieved in the Ishida process, and the quoted limitation of claim 7 is not described or suggested in Ishida.

As to the inherency issue regarding the quoted portion of claim 1, applicants respectfully point out that the form of the cationic organic particles described in Ishida (as well as those described in the present application) *in the finished product*, will depend not only on the composition of those particles, but also the processing steps that are used to manufacture the product. In particular, the form of the particles depends to a significant extent on whether the product is calendered, and how.

Ishida paragraph [0074], relied on by the examiner, appears to say (given the quality of the translation), that to obtain a glossy surface, the recording medium should be calendered under “pressure and temperature”. Ishida does not describe the pressures and

temperatures of the calendering step, except in the examples. In his examples, Ishida uniformly uses a calendering temperature of 75°C. Therefore, Ishida does not teach or suggest the low temperature calendering of applicant's claim 7.

In applicants' Comparative Example 4, a calendering step is performed at 80°C, very close to the same temperature as shown in Ishida's examples and, significantly, the  $T_g$  of the polymer particles (which is reported as 97°C in Synthesis Example 1). The pressures are identical (100 kg/cm = 980.7 N/cm). In Comparative Example 4, the glossy layer had "a uniform surface", it "did not contain voids" and "fine polymer particles retaining particulate shapes were not observed". In other words, the application of heat and pressure, similar to that shown in Ishida's examples, fuses the particles, even though the  $T_g$  of the particles in Comparative Example 4 is higher than most of the polymer particles described in Ishida.

Simply put, the application of heat and pressure as described in Ishida causes the polymer particles to lose their identity as particles.

Therefore, Ishida's calendering conditions are (1) different than those described in applicant's application and (2) the differences in the calendering conditions has been shown by applicants to change the morphology of the polymer particles by fusing them. Therefore, Ishida does not inherently describe a recording medium having a glossy layer containing particles as described in applicant's claim 1.

Applicants would further note with respect to claim 7 that when soft calendering is performed at less than 40°C, as stated in the claim, different and better results are obtained, than when the calendering is performed at higher temperatures. This is shown by comparing applicants' Example 4 with their Comparative Example 4. The lower temperature calendering leads to improvements in ink absorbance and color reproducibility.

Therefore, Ishida (1) fails to explicitly or inherently describe a recording medium having a glossy layer which contains particles as described in applicants' claims, (2) fails to describe process conditions which lead to the formation of such particles, (3), fails to suggest any desirability for applicants' specific glossy medium or any way to obtain same and (4) fails to describe or suggest the calendering conditions of applicants claim 7. For those reasons, Ishida does not anticipate or render obvious any of applicants' claims.

None of the secondary references describes applicants' glossy layer, in particular the particle morphology. Therefore, no combination of the secondary references with Ishida can lead to the present invention.

Regarding the 102(b) and 103(a) rejections stated in paragraphs 16-17 of the office action

Once again, these rejections all rest on the examiner's assertion, contrary to the explicit teachings of the reference, that Hamada's films will have the characteristic that "the surfaces of adjacent polymer particles are in contact with each other or connected in spots but the boundary is not lost due to the fusion of the particles and voids are left between the polymer particles".

On this point, the examiner is once again referred to Hamada column 11, lines 13-22, Hamada's micrographs, and the arguments in applicants' previous responses.

On page 22, first full paragraph of the office action, the examiner attempts to infer a particle size from Hamada's teachings about pore size. Applicants point out (1) pore size is not particle size, (2) the examiner has cited (and applicants maintain he cannot cite) any reference which supports the theoretical basis for his inference and (3) one only has to look at Hamada's micrographs to see that his polymer film is not what is described in applicants' claim 1. What the micrographs clearly show is large masses of polymer randomly fused together, with pores of various sizes separating them. There are no discernible particles in those micrographs.

In the last paragraph of page 22, the examiner avers that because Hamada's layer is transparent, it must be made up of small particles, including those 100 to 200 nm in size. The problem with this rationale is that just because a thing is transparent, it does not mean that it is made up of particles of any certain size. Things much larger than 200 nm can be transparent; common examples include liquids such as water and solid materials such as glass, plastic films, various crystalline materials (such as many gemstones) and the like. None of these things are made up of 100-200 nm particles, but all are transparent. Therefore, the examiner's logic is contracted by commonsense experience, not to mention Hamada's own teachings.

What the examiner fails to apprehend is that in Hamada's process, highly solvated polymer droplets (not particles) form. Hamada specifically refers to these as "micelles" which are a "gel phase". These fuse together to form a film, in the same way that polymers in paints fuse together in the drying process to form a film. The identity of the droplets is lost when the particles fuse, which is why Hamada's micrographs do not resemble the applicant's micrograph. In the applicants' process, the particles are not solvated as in Hamada's process, and calendering conditions are such that they do not fuse.

If the examiner is to continue with this rejection, he is requested to cite some reference or reference which supports the theories espoused on page 22 of the office action and which would explain why those theories support this rejection over the explicit teachings of the Hamada reference.

As discussed before, none of the secondary references, alone or on combination with Hamada, teaches or suggests any recording sheet having a glossy layer as defined in applicant's claims, nor do they teach or suggest the applicants' process.

Regarding the requirement for a new declaration

The requirement for a new declaration is again noted. Applicants are still attempting the relocate the inventors to obtain a newly executed declaration, and will submit it as soon as it becomes available.

Conclusion

The subject matter of the claims has been shown to be novel and unobvious over the cited references. Applicants believe the case is now in condition for allowance, and a notice to that effect is requested.

Respectfully submitted,  
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